

# Getting Started with Spring Boot Cloud and AWS

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# Resources

Amazon Console:

<https://aws.amazon.com/>

MyGithub Repositories:

<https://github.com/madhusudhankonda/awspring>

<https://github.com/madhusudhankonda/boot-cloud-aws>

Reference Documentation:

<https://docs.awspring.io/spring-cloud-aws/docs/2.3.1/reference/html/index.html>



# Agenda

- Introduction to
  - Spring Framework/ Spring Boot / Spring Cloud
  - AWS
- Spring Philosophy - Simple Object
- AWS SDK and Configuration
- Simple Queue Service (SQS)
- Simple Notification Service (SNS)
- Relational Database Service (RDS)
- Simple Object Service (S3)
- Hands-on and AWS console exercises
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# Poll

What is your level of understanding in **Spring Framework/Spring Boot**?

- Just starting up (beginner level)
- I know a bit (intermediate level)
- I'm super (advanced level)

# Poll

What is your level of understanding in **Spring Cloud**?

- Just starting up (beginner level)
- I know a bit (intermediate level)
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# Poll

What is your level of understanding in **AWS**?

- Just starting up (beginner level)
- I know a bit (intermediate level)
- I'm super (advanced level)

# Introducing Spring Cloud/AWS

# Spring Cloud

- Project to springify consumption of cloud services
- Provides well defined cloud patterns
  - Circuit breakers
  - Service Discovery
  - Distributed Tracing
  - Configuration Management..
- Integrated with multi-clouds:
  - Spring Cloud for AWS
  - Spring Cloud for Azure
  - Spring Cloud of GCP



# Amazon Web Services (AWS)

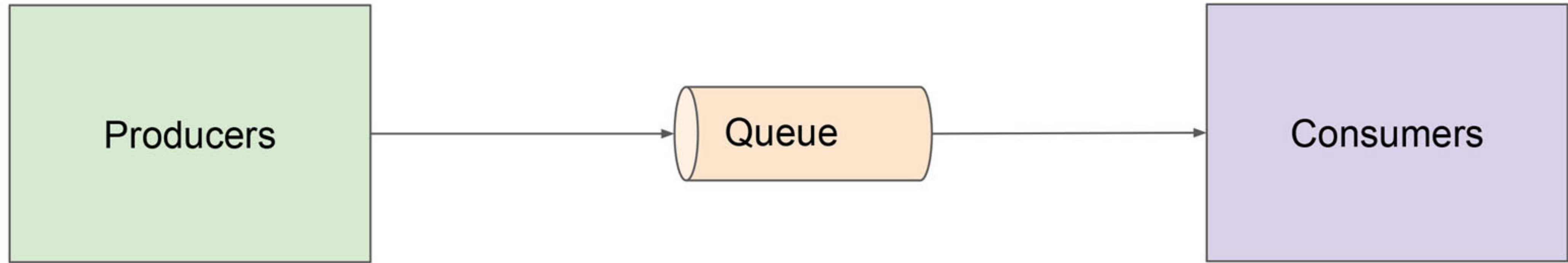
- Cloud based web service
- Multitude of services:
  - S3/SNS/SQS/RDS/...
- Offers
  - IaaS - infrastructure as a service
  - PaaS - platform as a service
  - SaaS - software as a service
  - FaaS - function as a service

# Simple Queue Service (SQS)

# Simple Queue Service (SQS)

- Point to Point Messaging Service
- Managed Queue Service
- Producer-Consumer pattern
- Guaranteed delivery
- Distributed and highly scalable
- Secured at rest and transit

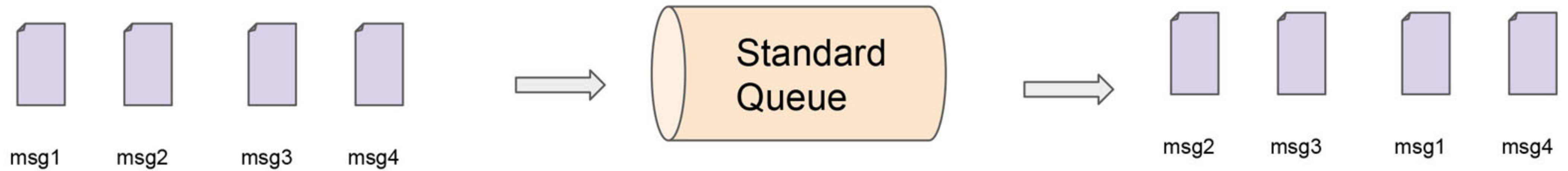
# Point to Point Architecture



- Promotes decoupling
- No messaging hardware



# Standard Queue



- Order is not maintained
- Occasionally duplicates can be delivered
- High throughput

# First-in-first-out (FIFO) Queue



- Ordered queue
- Guaranteed one time delivery

## Standard Queues

- Duplicates are ok
- Ordering is unimportant
- Real-time notifications

For eg:

Price Quotes

Heartbeats

## FIFO Queues

- Duplicates are no-no
- Ordering is important

For eg:

Flight reservations

Order management

# Hands on SQS

SQS on Amazon:

- <https://aws.amazon.com/sqs/>

SQS on GitHub

- <https://github.com/madhusudhankonda/boot-cloud-aws>

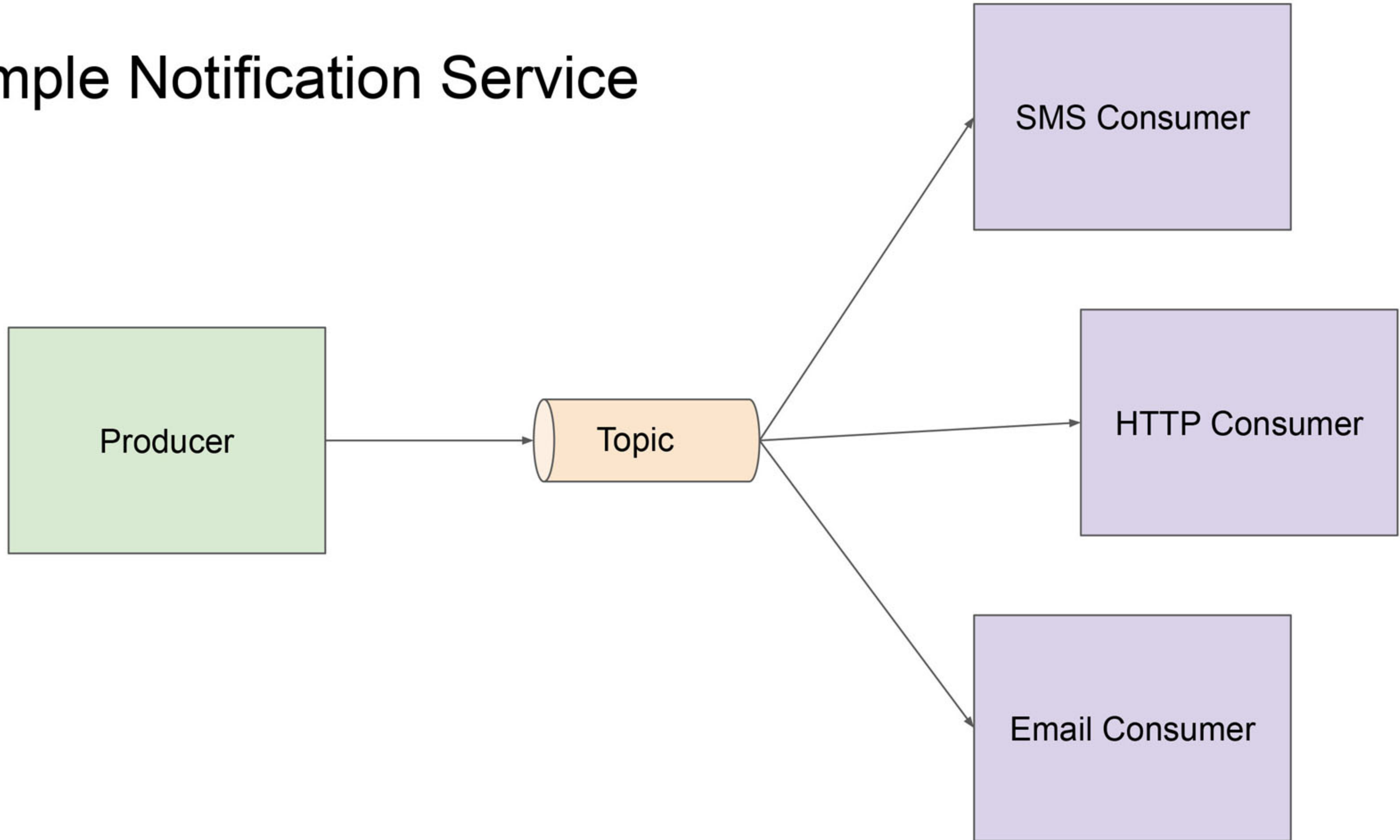


# Simple Notification Service (SNS)

# Simple Notification Service

- Topic based push messaging
- pub/sub - publish and subscribe
- Fan out the messages
- Application-to-application
- Application-to-person
- Producers can be micro-services, AWS services..
- Consumers (endpoints) -> SMS/SQS/Email/HTTP/Lambda..

# Simple Notification Service



# Endpoints (consumers)

- HTTP/S
- SMS
- EMAIL
- SQS
- Lambda



# Hands-on

- <https://aws.amazon.com/sns>
- Create a topic
- Send a message to
  - Email
  - SMS
  - Queue (SQS)
- Listen to the messages

# SQS Vs SNS

- Point to point
  - Unordered messages
  - High throughput
- Pub/Sub
  - Guaranteed order
  - Considerable throughput

# Relational Database Service

# RDS

- Managed database service
  - MySQL, Oracle, Postgres, MariaDB, SQL Server
  - AWS's own Aurora
- Highly scalable
- Lower costs
- Performance and scalability
- Replication and snapshots/backups



# Hand-on

- Aws Console: <https://aws.amazon.com/rds>
- Spin up a MySQL instance
- Develop Spring Application
- Communicate with the remote DB
- Persist/retrieve (CRUD) data

# Simple Storage Service

# S3

- Managed Object Storage
- Upload/download files/objects
- Durability (99.99....11 9's)
- Use cases
  - Image/Cloud Storage Apps with S3 storage
  - Archiving huge data

# Hands-on

- Aws Console: <https://aws.amazon.com/s3>
- Create buckets
- Develop Spring Application
- Communicate with the S3 buckets
- Upload/download files

Thank you!